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wherein at least one of said lead terminals of the film carrier is formed in such a manner as to have a pre-connection shape including a parallel straight region and a bent region in an overlapping area of said TFT substrate with said film carrier such that said at least one lead terminal will be substantially aligned to a respective electrode when connected thereto.

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-7 are presently active in this case; Claims 3 and 5-7 having been amended by way of the present amendment.

In the outstanding Office Action, Claims 3 and 6-7 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,052,171 to Kawaguchi; Claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawaguchi; and Claims 1, 2, and 4 were allowed.

Applicants wish to thank the Examiner for allowance of Claims 1, 2, and 4.

Turning now to the merits, in order to expedite issuance of a patent in this case, Applicants have now amended Claims 3 and 5-7 to clarify the patentable features of the claimed invention over the cited references. Specifically, Claims 3 and 5-7, as amended, recite that at least one of a lead terminal and electrode terminal has a pre-connection shape, and that this at least one terminal is substantially aligned with a respective terminal to which it is connected, after connection. As described in Applicants' specification, the pre-connection shape of either the lead terminal or electrode terminal provided prior to connection of the terminals allows the mutual position of the lead terminal and electrode

terminal to be substantially aligned after thermal expansion of the tape carrier package (TCP) during the thermocompression bonding.

In contrast, the cited reference to Kawaguchi discloses a liquid crystal display with electrically connected integrated circuits. As seen in Figure 2, a liquid crystal panel 10 includes source lines 11 corresponding to the lead terminals of the claimed invention. In addition, Figure 2 shows output lines 21 of the IC 20, which connect with the source lines of the liquid crystal panel.¹ However, Figure 2 of Kawaguchi shows only a schematic representation of the connection between the source lines 11 and the output lines 21. In this regard, Applicants note that, while Figure 2 of Kawaguchi shows that the source lines 11 have a bend in them, this bend is merely to route the source lines to the output lines and is not located at the connection portion of the source lines 11 and output lines 21. The details of the connection between the source lines 11 and the output lines 21 is simply not shown. Moreover, the cited reference to Kawaguchi is silent as to the shape change of the TCP output leads 21 as a result of thermal expansion. Thus, Kawaguchi et al. does not disclose that at least one of a lead terminal and electrode terminal has a pre-connection shape, and that this at least one terminal is substantially aligned with a respective terminal to which it is connected, after connection

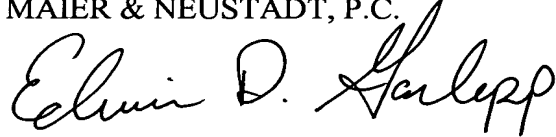
Thus, Applicants respectfully submit that Claims 3 and 5-7 patentably define over the cited references.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. An early and favorable action is therefore respectfully requested.

¹See Kawaguchi at col. 4, lines 44-48.

Respectfully submitted,

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IN THE CLAIMS

Please amend Claims 3 and 5-7 as shown below:

3. (Amended) A liquid crystal display comprising:

a thin film transistor (TFT) glass substrate having a plurality of electrode terminals;

a tape carrier package (TCP) having a plurality of lead terminals;

an anisotropic conductive film connecting said electrode terminals with respective ones of said lead terminals in an overlapping connection shape, wherein at least one of said electrode terminals or at least one of said lead terminals has a pre-connection shape different from said overlapping connection shape, which enables said lead terminals to be substantially aligned with said respective electrode terminals in said overlapping connection shape.

5. (Amended) A method of joining the leads of a tape carrier package (TCP) to the electrodes of a thin film transistor (TFT) substrate in a liquid crystal display, the method comprising:

pre-forming at least one of said leads or at least one of said electrodes to have a pre-connection shape including a straight region and an oblique region;

overlapping said electrodes with said leads; and

electrically connecting said electrodes and leads through an anisotropic conducting film by thermocompression bonding, which causes said preformed lead or electrode to be substantially aligned with the respective lead or electrode to which it is connected.

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6. (Amended) A TFT substrate comprising:

a plurality of electrode terminals arranged in a comb teeth manner along one end face [thereof] of the TFT substrate and connected to a plurality of lead terminals of a film carrier through an anisotropic conductive film;

wherein at least one of the electrode terminals of said TFT substrate is formed in such a manner as to have a pre-connection shape including a parallel straight region and a bent region in an overlapping area of said TFT substrate with said film carrier such that a respective lead terminal of the film carrier will be substantially aligned to the predetermined shape of the at least one electrode when connected thereto.

7. (Amended) A film carrier comprising

a plurality of lead terminals being connected to a plurality of electrode terminals arranged in a comb teeth manner along one end face of a TFT substrate through an anisotropic conductive film;

wherein at least one of said lead terminals of the film carrier is formed in such a manner as to have a pre-connection shape including a parallel straight region and a bent region in an overlapping area of said TFT substrate with said film carrier such that said at least one lead terminal will be substantially aligned to a respective electrode when connected thereto.